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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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MAR - 3 2004

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

Amendment of Parts 2, 25, and 87 of the Commission's)
Rules to Implement Decisions from the World)
Radiocommunication Conferences Concerning)
Frequency Bands Between 28 MHz and 36 GHz and)
to Otherwise Update the Rules in this Frequency Range)

ET Docket No. 02-305

Amendment of Parts 2 and 25 of the Commission's)
Rules to Allocate Spectrum For Government and)
Non-Government Use in the Radionavigation-Satellite)
Service)

RM-10331

OPPOSITION TO PETITION FOR PARTIAL RECONSIDERATION

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TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY	2
II.	AIR TV’S PETITION MUST BE DENIED AS A MATTER OF LAW	5
A.	Grant of AirTV Petition Would Violate the Administrative Procedures Act.	5
B.	AirTV Carries the Burden of Showing that BSS Systems Will Not Cause Interference to Terrestrial Systems	7
III.	AIRTV’S PROPOSED BSS SYSTEM WILL CAUSE INTERFERENCE TO U.S. TERRESTRIAL SERVICES	10
A.	The Commission Should Not Consider AirTV’s Study	10
B.	AirTV’s Proposed BSS System Will Cause Interference	11
IV.	ELIMINATION OF THE BSS ALLOCATION DOES NOT CONFLICT WITH THE WHO AGREEMENT OR VIOLATE THE UNITED STATES’ INTERNATIONAL OBLIGATIONS	15
	CONCLUSION.....	17

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The Wireless Communications Association International, Inc. ("WCA")¹ hereby submits its opposition to the Petition for Partial Reconsideration of the Commission's November 4, 2003 *Report and Order*² filed by AirTV Limited ("AirTV") on January 22, 2004.³ For the reasons set forth below, the Commission should affirm its decision to delete the Fixed Satellite Service ("FSS") and Broadcast Satellite Service ("BSS") allocations from the 2500-2690 MHz band.

¹ WCA is the trade association of the wireless broadband industry and is the primary industry advocate for users of, among other services, the Wireless Communications Service ("WCS") at 2.3 GHz, unlicensed spectrum at 2.4 GHz ("WiFi"), the Multipoint Distribution Service ("MDS") at 2.1 and 2.5 GHz and the Instructional Television Fixed Service ("ITFS") spectrum at 2.5 GHz. Because, as discussed below, permitting BSS systems to operate in the United States will introduce interference into incumbent ITFS and MDS systems, has a direct and vital interest in the outcome of this proceeding. In that regard, WCA filed reply comments in this proceeding on March 10, 2003. *See infra* text at 3.

² *Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range; Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum For Government and Non-Government Use in the Radionavigation-Satellite Service*, 18 FCC Rcd 23426, 23427-28 (2003) ("*Report and Order*").

³ *See* 68 Fed. Reg. 7485 (Feb. 17, 2004).

I. INTRODUCTION AND SUMMARY

Prior to the *Report and Order*, the United States Table of Frequency Allocations allocated the 2500-2690 MHz band to the fixed, mobile, except aeronautical mobile, BSS, and FSS on a co-primary basis.⁴ As an adjunct to the original ITFS use of the band, the BSS allocation was limited by footnote NG101 to community reception of educational television programming and public service information.⁵

In a *Notice of Proposed Rulemaking* released October 7, 2002, the Commission recognized that the 2500-2690 MHz band is heavily used by the ITFS and MDS licensees to provide traditional one-way analog video services⁶ and that many MDS licensees are upgrading their systems to provide two-way digital, point-to-multipoint fixed services for the delivery of high-speed internet access to the public, in addition to traditional video programming.⁷

By contrast, the Commission found that the FSS and BSS allocations in the band were unused and effectively obsolete because they were made before two-way, point-to-multipoint MDS data services at 2500-2690 MHz had been anticipated.⁸ The Commission recognized that “FSS and BSS operations in the band 2500-2690 MHz could affect the reliability of point-to-multipoint channels and low-power consumer response channels.”⁹ The Commission, therefore, proposed to delete the FSS and BSS allocations from the 2500-2690 MHz band “in order to

⁴ 47 C.F.R. § 2.106 (2003).

⁵ *Id.* § 2.106, n. NG101.

⁶ *Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range; Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum For Government and Non-Government Use in the Radionavigation-Satellite Service*, 17 FCC Rcd 19756, 19773-74 (“NPRM”).

⁷ *Id.*

⁸ *NPRM*, 17 FCC Rcd at ¶ 52.

⁹ *Id.*

remove allocations that are not compatible with two-way, point-to-multipoint fixed uses” and “to remove regulatory uncertainty from this spectrum.”¹⁰

AirTV, the only party to object to this proposal, urged the Commission not to eliminate the 2535-2655 MHz portion of the 2500-2690 MHz BSS S-band allocation.¹¹ To the contrary, AirTV asked the Commission to expand substantially the nature of the satellite services permitted in that band, to permit AirTV to provide a satellite-based Direct-to-Aircraft entertainment and connectivity system that would otherwise be prohibited in the 2520-2670 MHz band.¹²

WCA and The Boeing Company (“Boeing”) each opposed AirTV’s request. WCA pointed out that adoption of AirTV’s proposal would (1) violate the Administrative Procedure Act (“APA”) and (2) cause serious harm to the provision of MDS/ITFS services in the 2500-2690 MHz band.¹³ Boeing demonstrated that eliminating the BSS allocation would not create a *de facto* monopoly in the U.S. for the provision of broadband satellite services to aircraft, as AirTV argued.¹⁴ Boeing also demonstrated that the World Trade Organization General Agreement on Trade in Services (“WTO Agreement”) does not apply to BSS systems and thus, contrary to AirTV’s position, the Commission is free to limit new satellite authorizations when faced with potential interference issues with incumbent operations.¹⁵

¹⁰ *Id.*

¹¹ *See* AirTV Comments 3-8 (filed Feb. 10, 2003). AirTV also argued that the Commission should, nevertheless, eliminate footnote NG101. *Id.*

¹² *See id.* at 8.

¹³ *See* WCA Reply Comments (filed Mar. 10, 2003)

¹⁴ *See* Boeing Reply Comments at 3 (filed Mar. 10, 2003), citing AirTV Comments at 3-10.

¹⁵ *Id.* at 4.

The *Report and Order*, among other things, deleted the FSS and BSS allocations from the 2500-2690 MHz band, eliminating associated footnote NG101.¹⁶ The Commission confirmed that the FSS and BSS allocations were unused and obsolete and found that BSS systems operating in the United States would increase costs for terrestrial services due to the need to mitigate interference caused by such systems.¹⁷ The Commission also agreed with WCA's argument that AirTV failed to demonstrate that BSS systems will not cause interference to terrestrial services,¹⁸ and with Boeing's argument that the WTO Agreement does not limit the Commission's authority over new satellite authorizations.¹⁹

AirTV filed the instant Petition for Partial Reconsideration asking the Commission to reverse its decision to eliminate the 2535-2655 MHz portion of the 2500-2690 MHz BSS S-band allocation and to delete the associated footnote NG101.²⁰ AirTV alleges that the Commission improperly placed the burden on AirTV to demonstrate that its proposed service would not cause interference.²¹ AirTV contends that the Commission had no record evidence to support its finding that BSS systems operating in the United States would cause interference to terrestrial systems.²² AirTV also asserts that the Commission's decision improperly ignores U.S. obligations under the WTO Agreement and interferes with Canada's presumptive right to offer services.²³ Tellingly, AirTV did not address the other objections raised by WCA and Boeing.

¹⁶ *Report and Order*, 18 FCC Rcd at 23427-28.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *See* AirTV Petition at 2, 9-10.

²¹ *See id.* at 2.

²² *See id.* at 2.

²³ *See id.* at 7-9.

WCA strenuously opposes AirTV's Petition. By seeking reinstatement of the BSS allocation coupled with the elimination of footnote NG101, AirTV is attempting to secure a spectrum allocation for its potential satellite-based Direct-to-Aircraft entertainment and connectivity system where there was no allocation for such use previously.²⁴ No such allocation was proposed in the NPRM, and therefore such action is barred by the APA. Further, BSS systems operating in the United States will cause interference to terrestrial systems. Finally, AirTV's claims regarding the burden of proof being inappropriately placed on it and regarding U.S. international obligations are without merit. The Commission should therefore deny AirTV's Petition for Partial Reconsideration.

II. AIRTV'S PETITION MUST BE DENIED AS A MATTER OF LAW

A. Grant of AirTV Petition Would Violate the Administrative Procedures Act

The Commission cannot, under the APA, reallocate the 2535-2655 MHz portion of the 2500-2690 MHz BSS S-band as requested in AirTV's Petition. Prior to adoption of the *Report and Order*, the Commission restricted BSS operations in the 2500-2690 MHz band to "domestic and regional systems for community reception of educational television programming and public service information."²⁵ AirTV concedes that the services it contemplates offering – television programming, email and internet access to long-haul commercial airplanes – would be barred by NG101.²⁶ Thus, by seeking to reinstate the BSS allocation without the restriction to educational purposes, AirTV is trying to increase significantly the nature and scope of satellite services that could be provided in the United States in the 2500-2690 MHz band. As WCA demonstrated in

²⁴ *Id.* at 1.

²⁵ 47 C.F.R. § 2.106, NG101.

²⁶ *See* AirTV Petition at 9-10.

its reply comments, however, such action cannot lawfully be undertaken in the instant proceeding.²⁷

Under the APA, federal agencies must include in a Notice of Proposed Rulemaking “either the terms or substance of the proposed rule or a description of the subjects and issues involved.”²⁸ While a final rule need not absolutely match the rule proposed, the Commission cannot shift course if it has not alerted interested parties to the possibility that it might do so.²⁹ In this case, the *NPRM* proposed eliminating BSS operations in the 2500-2690 MHz band; it did not propose expanding the scope of such operations with new services.³⁰ Air TV’s Petition, by contrast, requests the Commission to do precisely the opposite of what it proposed in the *NPRM* (i.e., expand the scope of the BSS allocation, rather than eliminate it altogether). Indeed, AirTV’s request is so contrary to the actions proposed in the *NPRM* that the request cannot even be deemed a “logical outgrowth” of the Commission’s proposed rule. Consequently, AirTV’s Petition must be dismissed on APA grounds alone.³¹

²⁷ WCA Reply Comments at 3-4.

²⁸ 5 U.S.C. § 553(b)(3).

²⁹ See *Koritzsky v. Reich*, 17 F.3d 1509, 1513 (D.C. Cir. 1994) (“*Koritzsky*”).

³⁰ In the *NPRM*, the Commission stated its belief that FSS and BSS operations in the band 2500-2690 MHz could affect the reliability of two-way digital, point-to-multipoint fixed services which had not been considered when the BSS and FSS allocations were originally made. 17 FCC Rcd at 19773. Therefore, the Commission proposed to delete the unused and limited FSS and BSS allocations from the band 2500-2690 MHz in order to remove regulatory uncertainty. *Id*

³¹ See, e.g., *Koritzsky*, 17 F.3d at 1513; *Amendment of the Commission's Rules Concerning Maritime Communications*, 17 FCC Rcd 6685, 6697 (2002) (declaring request that Commission defer auction of AMTS spectrum and consolidate AMTS and other bands into one service to be beyond the scope of rulemaking on licensing of AMTS stations); *Revision and Update of the Public Mobile Radio Service Rules*, 95 FCC 2d 769, 828 (1983) (“Air-ground radiotelephone service, Section 22.521. We proposed to combine all sections dealing with [the air-ground radiotelephone service] into [Section 22.521]. Flight Inc. and Wulfsberg filed comments requesting that a rulemaking petition filed on January 22, 1980 by Wulfsberg be considered in this proceeding. Wulfsberg requests that frequency 459.675 MHz be assigned as an automated

B. AirTV Carries the Burden of Showing that BSS Systems Will Not Cause Interference to Terrestrial Systems

AirTV argues that the Commission had authority to eliminate the BSS allocation only upon a finding that BSS could not coexist with terrestrial services. Thus, AirTV asserts, by eliminating the BSS allocation because of potential interference to terrestrial services, the Commission improperly placed the burden of demonstrating no interference on AirTV.³² AirTV's argument is without merit.

The Commission has broad authority under Section 303 of the Communications Act of 1934, as amended, 47 U.S.C. § 303, to remove the BSS allocation from the U.S. Table of Allocations and is not required to make an "affirmative showing that co-existence with co-frequency/co-primary terrestrial services is not feasible," as AirTV suggests.³³ As the Commission has stated:

Nothing in the language of Section 303 establishes or suggests any limitation or restriction on the Commission's discretion to prescribe the nature of the service to be rendered over radio frequencies or authority to assign (or allocate) frequencies to the various classes of stations. Moreover, nothing in the language of Section 303 or its legislative history ... limits the Commission's discretion in making spectrum allocations that it deems to serve the public interest. With respect to allocation decisions, courts have accorded 'substantial deference' to Commission determinations.³⁴

Further, the Commission has previously deleted an unused spectrum allocation in circumstances that closely parallel the instant proceeding. In its *Radionavigation Order*, the

signaling channel in communications by and with airborne stations. We will not adopt the commenter's proposal. The request is beyond the scope of this proceeding since it entails the reallocation of the frequency for the requested purpose.").

³² See Petition at 5-6.

³³ *Id.* at 5.

³⁴ *Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use*, 11 FCC Rcd 624, 634-35 (1995) (citing *National Ass'n of Regulatory Util. Comm'ners v. FCC*, 525 F.2d 630, 636 (D.C. Cir.), *cert. denied*, 425 U.S. 992 (1976); *Telocator Network of America v. FCC*, 691 F.2d 525, 549 (D.C. Cir. 1982)).

Commission deleted the *unused* radionavigation service allocation from the sub-band 31.8-32.3 GHz in the Non-Federal Government Table of Frequency Allocations.³⁵ NASA and NTIA requested this unused service to be removed to alleviate the “potential for interference” in the band from these radionavigation transmissions.³⁶ NASA also argued that deep space operations could not be “coordinated successfully with [radionavigation devices] operating on an unrestricted basis within line-of-sight of the Deep Space Network site at Goldstone.”³⁷ The Commission deleted the spectrum based solely on these concerns without technical studies and other evidence affirmatively showing that the radionavigation services could not co-exist on the spectrum. Thus, there is no basis to conclude that the Commission could delete the BSS allocation only upon an affirmative showing that BSS cannot co-exist with existing terrestrial services.

AirTV cites to the Commission’s *MVDDS Order* in support of its position.³⁸ This decision, however, does not compel a contrary conclusion. In that case, the Commission found that it was “technically feasible for MVDDS to ubiquitously share the 12 GHz band without causing interference to DBS.”³⁹ The Commission then concluded that it was appropriate “to

³⁵ *Amendment of Parts 2 and 87 of the Commission’s Rules Regarding the Radionavigation Service at 31.8-32.3 GHz*, 15 FCC Rcd 18587 (2000) (“*Radionavigation Order*”).

³⁶ *Id.* at 18590.

³⁷ *Id.*

³⁸ Petition at 6 (citing to *Amendment of Parts 2 and 25 of the Commission’s Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission’s Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. To Provide a Fixed Service in the 12.2-12.7 GHz Band*, 18 FCC Rcd 8428 (2003) (“*MVDDS Order*”).

³⁹ *MVDDS Order*, 18 FCC Rcd at 8442.

craft a sharing plan through the rule making process that will enable such sharing.”⁴⁰ In short, the *MVDDS Order* deals with adding a new service to a spectrum band, while the instant case deals the Commission’s decision to delete an obsolete and unused allocation.

As discussed above, AirTV’s efforts to have the Commission expand the scope of the BSS allocation, rather than eliminate it, are unlawful. Moreover, even if AirTV had chosen the proper procedural vehicle for expanding the BSS allocation, it would have been incumbent on AirTV to demonstrate the compatibility of such expanded satellite services with existing terrestrial services.

The Commission has granted waivers of Section 2.106 of its Rules to permit spectrum to be used to provide services other than those for which such spectrum is allocated.⁴¹ However, the Commission will generally take such action only “when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.”⁴² For example, in its petition for waiver of Section 2.106 for authority to provide its Connexion service, Boeing Corporation presented the Commission with evidence of its extensive (and ultimately successful) efforts to coordinate with the other licensees that might be affected by its satellite transmissions. It was upon the basis of this evidence that the Commission granted Boeing’s waiver request.

Based on the analyses of potential interference from AMSS operations, and on the fact that all of the parties to this proceeding reached consensus on the appropriate measures for AMSS systems to protect primary FSS operations, we find that Boeing’s request for waiver of the Table of Frequency Allocations is justified and grant of Boeing’s application is in the public interest.⁴³

⁴⁰ *Id.*

⁴¹ *The Boeing Company*, 16 FCC Rcd 22645 (2001).

⁴² *Id.* at 22651, quoting *Fugro-Chance, Inc.*, 10 FCC Rcd 2860, 2860 (Int’l Bureau 1995) (authorizing non-conforming MMSS in the C-band).

⁴³ *Id.* at 22652.

As discussed below, however, AirTV did not, nor can it, make a similar showing for BSS systems operating in the United States.

III. AIRTV'S PROPOSED BSS SYSTEM WILL CAUSE INTERFERENCE TO U.S. TERRESTRIAL SERVICES

A. The Commission Should Not Consider AirTV's Untimely-Filed Study

AirTV argues that the Commission lacked evidence to support its conclusion that BSS systems operating in the United States may cause interference to terrestrial systems.⁴⁴ AirTV contends that the record “contains evidence affirmatively and directly contravening” the notion that AirTV’s system would cause interference to terrestrial MDS and ITFS systems.⁴⁵ Even a casual review of AirTV’s filings in this proceeding, however, reveals that AirTV furnished virtually no information regarding the impact of its system on the actual or expected terrestrial operations in the band and certainly submitted no technical studies supporting its position. In fact, AirTV failed to submit any such study until it filed its Petition for Partial Reconsideration.⁴⁶

Providing the study in this manner, however, violates the Commission’s rules and requires that the Commission dismiss the Petition. Under the Commission’s rules, a petition for reconsideration that relies on facts not previously submitted to the Commission may be granted *only* if: (1) such facts relate to matters that arose after the petitioner’s last opportunity to present evidence; (2) such facts were previously unknown to the petitioner; or (3) consideration of the new facts is required in the public interest.⁴⁷ While AirTV alleges that its study bolsters matters previously presented to the Commission, it is evident that the study neither relates to new matters nor contains facts that were previously unknown to AirTV. The AirTV Study could have been

⁴⁴ See *id.* at 3-5.

⁴⁵ *Id.* at 3-4.

⁴⁶ See AirTV Petition, Attachment 1 (“AirTV Study”).

⁴⁷ 47 C.F.R. § 1.429(b).

considered if filed in an appropriate context, but should not be accepted here. The Commission, therefore, should disregard AirTV's Study and dismiss the Petition consistent with Section 1.429(b) of its rules.

B. AirTV's Proposed BSS System Will Cause Interference

Notwithstanding the inadmissibility of the AirTV Study, WCA has undertaken a careful analysis of the study and has determined that it does not, as AirTV claims, demonstrate that "a BSS system of AirTV's design will not cause interference to U.S. terrestrial services."⁴⁸ In fact, as demonstrated by the Declaration report by Harry W. Perlow (appended hereto as Attachment A, "Perlow Declaration"), the AirTV Study is based upon numerous erroneous assumptions designed to create the false impression that BSS systems operating in the United States will not introduce interference into terrestrial services.⁴⁹

The most critical flaw in the AirTV Study is that it fails to consider the technical characteristics of the equipment actually deployed in the 2500-2690 MHz band. AirTV concedes that its interference analysis is based upon typical antenna parameters for IMT-2000 base stations and customer premises equipment ("CPE") antennas.⁵⁰ These parameters, however, do not reflect the characteristics of existing and deployed MDS or ITFS video receive antennas and first generation ("1G") data transceivers. Most of the major holders of spectrum in that band have announced that they have no plans to deploy the IMTS-2000 equipment analyzed by AirTV. The AirTV Study has absolutely no bearing on whether BSS systems will cause interference to U.S. terrestrial systems that are actually operating in the 2535-2655 MHz band.⁵¹

⁴⁸ AirTV Petition at 5.

⁴⁹ See Perlow Declaration at ¶¶ 4, 5.

⁵⁰ AirTV Study at 5.

⁵¹ See Perlow Declaration at ¶ 4.

AirTV's Study contains numerous other questionable assumptions and omissions which are designed to support the erroneous conclusion that AirTV's BSS system will not cause interference to U.S. terrestrial systems.⁵² AirTV repeatedly emphasizes that its proposed system will operate at PFD values "more than 8 dB below the ITU specified hard limits" as set forth Table 21-4 of the ITU Radio Regulations ("Table 21-4").⁵³ AirTV, however, is seeking a new allocation for BSS systems generally, and has neither sought to limit the allocation to systems utilizing its proposed PFD values nor suggested any mechanism to assure that all BSS systems are limited to these values. Thus, the fact that AirTV claims PFD values 8 dB below the Table 21-4 values provides no insight into the potential interference from BSS systems operating in the United States.

Similarly, WCA disagrees with AirTV's assertion that the interference threshold ("I/N") from a BSS satellite into terrestrial receivers should be -6 dB.⁵⁴ To the contrary, a maximum I/N level of -10 dB is necessary to protect terrestrial receivers from interference from a BSS satellite.⁵⁵ AirTV's assertion an I/N threshold of -6 dB is recommended by the ITU is wrong.⁵⁶ In fact, Recommendation ITU-R F.758-2 upon which AirTV relies was superceded by

⁵² See *id.* at ¶ 5. In this regard, WCA notes that AirTV's Study focuses solely on the continental United States, but not Canada, and makes no effort to determine the impact its BSS system will have on terrestrial systems located in Alaska, Hawaii, Puerto Rico and other U.S. territories. See AirTV Study at 2. These omissions are instructive for two reasons. First, it emphasizes that the AirTV system is designed and intended to serve the United States, not Canada. Second, it avoids significant interference concerns that would arise in Canada. Although, AirTV's Figure 1 is unclear, it appears that Alaska would be in Zone 10 with an EIRP of 41.6. *Id.* Antenna operating in Alaska, however, must utilize extraordinarily high gain, and will by definition have very low "look angles" at geostationary satellites orbiting over the equator. Such conditions would likely result in I/N levels well in excess of the -10 dB threshold.

⁵³ See Petition at 1.

⁵⁴ See *id.* at 4.

⁵⁵ See Perlow Declaration at ¶ 6.

⁵⁶ *Id.* citing Recommendation ITU-R F.758-2.

Recommendation F.758-3 in February of 2003. F.758-3 does not expressly endorse -6 dB, but rather recommends “that studies are required to further develop appropriate short-term interference criteria; and that further studies are required to derive interference criteria that are appropriate for specific types of new services.”

Indeed, just last month, the United States Joint Task Group 6-8-9 (a group in which AirTV’s technical consultant has actively participated) adopted for submission to the ITU an input contributed by WCA, Sprint Corporation, BellSouth Corporation, Ericsson, IPWireless, Inc., Nextel, Nortel Catholic Television Network, and the National ITFS Association that endorsed -10dB as the appropriate maximum I/N for use in measuring satellite interference into terrestrial systems in the 2500-2690 MHz band.⁵⁷

The fact is that even a BSS system operating in the U.S. at AirTV’s proposed PFD values will cause interference to terrestrial systems.⁵⁸ On behalf of WCA, Mr. Perlow, an employee of Sprint Corporation’s Wireless Broadband Technology Group, analyzed the compatibility of BSS systems with existing service operations in the 2535-2655 MHz band. In conducting his analysis, Mr. Perlow utilized the PFD values set forth in Table 21-4 and well as those proposed by AirTV.⁵⁹ Rather than study irrelevant IMT-2000 technical parameters, however, Mr. Perlow utilized the parameters for two antennas currently deployed in the United States – a 24 dBi gain antenna used with fixed MDS/ITFS video and first generation (“1G”) data systems, as well as a second generation (“2G”) data antenna with 7 dBi of gain.⁶⁰

With regard to the video receive antenna and 1G data transceiver, Mr. Perlow found:

⁵⁷ *Id.*

⁵⁸ *Id.* at ¶¶ 9, 11.

⁵⁹ *Id.* at ¶ 7. Unlike AirTV, Mr. Perlow also calculated the I/N for each degree of receive angle from 20-50 degrees.

⁶⁰ *Id.*

the PFD values specified in Table 21-4 will produce I/N ratios in excess of -10 dB at all satellite elevations between 20 and 50 degrees, except at 32 degrees, using that particular antenna. Indeed, at most satellite elevations, Table 21-4 PFD values will produce I/N ratios which exceed even the less stringent -6 dB target advocated by AirTV. AirTV's proposed PFD values produce I/N ratios in excess of -10 dB at satellite elevations between 20 and 50 degrees.⁶¹

With regard to the 2G data antenna, Mr. Perlow concluded:

the PFD values specified in Table 21-4 produce, for this antenna, I/N ratios well in excess of -10 dB (and even in excess of -6 dB) at all satellite elevations between 20 and 50 degrees. AirTV's proposed PFD values produce I/N ratios in excess of -10 dB at all satellite elevations between 20 and 50 degrees and in excess of -6 dB at elevations between 34 and 50 degrees.⁶²

Finally, Mr. Perlow also indicates that BSS systems will be likely to cause interference to future CPE planned for operations in the 2535-2655 MHz band.⁶³ There is currently significant work being done to develop laptop computers and PDAs which incorporate flat panel or phased array antennas built into the LCD screen or cover. Insofar as these devices can be used out-of-doors and users will need to tilt the laptop cover or PDA for viewing, the built-in antennas will need to have a wide vertical elevation pattern and thus will have significant gain in the direction of a satellite at 20 to 50 degrees. Manufacturers will therefore need to install antennas with wide patterns so that the user will not have to aim the device at the base station location. Such devices will likely have gain in the 12 dBi range and it can be expected that as much as 6 to 10 dBi of that gain will directed toward a satellite at 20 to 50 degrees. Mr. Perlow concludes that, under such conditions, BSS systems operating in the United States would likely exceed even an I/N of -

⁶¹ *Id.* at ¶ 9.

⁶² *Id.* at ¶ 11.

⁶³ *Id.* at ¶ 12.

6 dB.⁶⁴ The Commission cannot reinstate the BSS allocation given such high predicted levels of interference to existing terrestrial operations.

IV. ELIMINATION OF THE BSS ALLOCATION DOES NOT CONFLICT WITH THE WHO AGREEMENT OR VIOLATE THE UNITED STATES' INTERNATIONAL OBLIGATIONS

Finally, there is no merit to AirTV's claims that the Commission is compelled to grant the requested expansion of the satellite services allocation because of U.S. obligations under the WTO Agreement. First, the United States took an exception with regard to the WTO Agreement for Direct-to-Home ("DTH"), Direct Broadcasting Satellite ("DBS") and Digital Audio Radio Services ("DARS") so that the WTO non-discrimination obligations do not apply to the services proposed by AirTV. There is nothing in the Commission decisions implementing the WTO Agreement that restricts those exempted services to the specific 12.2-12.7 GHz band as alleged by AirTV.⁶⁵ Indeed, the Commission addressed the fact that other countries did not include these services in their commitments, without limiting the discussion to any specific band.⁶⁶ In light of the nature of AirTV's proposed services, the WTO Agreement commitments are inapplicable to AirTV's attempt to gain entry, and thus irrelevant to the Commission's decision to remove the satellite services allocation in the 2535-2655 MHz band.

Second, even assuming *arguendo* that the WTO Agreement applied to AirTV's proposed services, it still would not support grant of AirTV's reconsideration petition. The United States' obligation under the WTO Agreement is to provide non-discriminatory treatment to foreign

⁶⁴ *Id.*

⁶⁵ Petition at 8.

⁶⁶ See *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States; Amendment of Section 25.131 of the Commission's Rules and Regulations to Eliminate the Licensing Requirement for Certain International Receive-Only Earth Stations*, 12 FCC Rcd 24094, 24135 (1997) ("WTO Implementation Order"); see also, *WTO Implementation Further NPRM*, 12 FCC Rcd 14220, 14228-29 (1997).

applicants – the United States did not undertake to guarantee unfettered access to foreign-licensed satellite systems. With regard to the deletion of the satellite service allocation in the 2535-2655 MHz band, there can be no legitimate claim that the Commission is discriminating against foreign satellite system applicants.⁶⁷ The Commission decision affects domestic and foreign systems in a non-discriminatory fashion. Furthermore, AirTV is not even an applicant for such a service.

In addition, the Commission made clear in its implementation of the WTO Agreement that spectrum availability remained a valid basis for excluding a foreign satellite system.⁶⁸ In this case, in light of the adverse effect of satellite services on terrestrial operations, the Commission properly determined that the 2535-2655 MHz band spectrum was not available generally for satellite services. Such a specific showing, however, in no way demonstrates that the Commission's decision to remove the satellite services allocation was inconsistent with United States' obligations under the WTO Agreement. And in no event does the WTO Agreement compel the Commission to expand the satellite services allocation in this band as requested by AirTV in its petition for reconsideration wherein it seeks reinstatement of the allocation along with elimination of the restrictive footnotes that limited satellite services in this band to specified educational purposes.

⁶⁷ The Commission can also summarily reject AirTV's claim that the United States should "respect Canada's presumptive right to offer satellite service." Petition at 8. Canada itself does not list an allocation for Broadcasting Satellite Service in the 2500-2690 MHz band. Further, the Commission is addressing the Canadian-licensed satellite system through the intergovernmental ITU coordination process. The governments will determine whether operations in Canada will adversely affect U.S.-licensed operations here, and what steps need to be taken to ensure that Canadian services will not harm U.S. services. The United States, however, retains sovereignty over RF operations in the United States, and owes no duty to follow Canadian determinations when deciding how to allocate spectrum for U.S. operations.

⁶⁸ *WTO Implementation Order*, 12 FCC Rcd at 24157-59.

CONCLUSION

For all of these reasons, WCA urges the Commission to deny expeditiously the AirTV petition for reconsideration.

Respectfully submitted,

**WIRELESS COMMUNICATIONS ASSOCIATION
INTERNATIONAL, INC.**

By: /s/ Paul J. Sinderbrand
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Its Attorneys

March 3, 2004

DECLARATION OF HARRY W. PERLOW

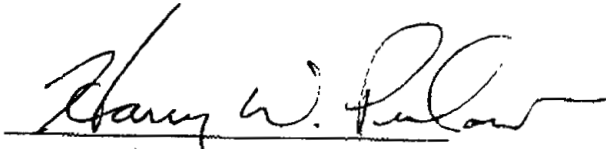
I, Harry W. Perlow, under penalty of perjury, hereby declare that the following is true and correct to the best of my information, knowledge and belief:

1. I am an employee of Sprint Corporation's Broadband Wireless Technology Group with 31 years experience in wireless technologies. I am qualified to provide the opinions and analyses presented in this Declaration and the accompanying Exhibits.
2. I prepared this Declaration and Exhibits 1 and 2 in support of the Wireless Communications Association International, Inc.'s ("WCA") Opposition to the Petition for Partial Reconsideration filed on January 22, 2004 by AirTV Limited ("AirTV") in *Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range; Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum For Government and Non-Government Use in the Radionavigation-Satellite Service*, 18 FCC Rcd 23426 (2003).
3. I have reviewed the report entitled "Feasibility of Co-Frequency Sharing Between BSS Systems and Terrestrial Systems in the Band 2535-2655 MHz" which is appended as Attachment 1 to AirTV's Petition for Partial Reconsideration. As discussed in more detail below, the Report is flawed and does not support AirTV's conclusion that BSS systems will not cause interference to U.S. terrestrial services. Indeed, as shown in the attached Exhibits, if allowed to operate in the United States, BSS systems will cause interference to existing service operations in the 2535-2655 MHz band.
4. AirTV asserts that its analysis is based upon typical antenna parameters for IMT-2000 ("3G") base stations and CPE antennas. *See* AirTV Report at 5. AirTV's reliance on these antenna parameters, however, is fundamentally misplaced. First, these parameters do not reflect the parameters of MDS or ITFS video receive antennas and first ("1G") and second generation ("2G") data transceivers that are currently deployed and operating in the United States. Second, AirTV's selection of these antenna parameters assumes that operators in the 2535-2655 MHz band will deploy IMTS-2000 in the future. In fact, however, most of the major holders of spectrum in that band are evaluating future deployments that do not necessarily comport with the IMTS-2000 standards. In sum, the data submitted by AirTV has no bearing on the question of whether its BSS system will cause interference to U.S. terrestrial systems operating in the 2535-2655 MHz band.
5. Even were operators in the U.S. planning to deploy IMT-2000, AirTV's Report contains numerous questionable assumptions which undermine the Report's conclusions. For example, AirTV calculates the gain over elevation of a 3G CPE with a whip antenna with 2 dBi of gain and concludes that there will be negative antenna gain at receive angles of 30, 40 and 50 degrees. *See* AirTV Report at 6-8. AirTV's calculations, however, ignore the fact that, when in use, the antenna for such CPE will be held at an approximately 45 degree angle as the user holds the CPE to their ear. At this angle, the CPE antenna will have 2 dBi of gain in the direction of the satellite. Thus, for example, AirTV's claim that the antenna will have -4.5 dBi of gain at 50 degrees is wrong by 6.5 dB. Compounding this error, AirTV posits a 2 dB loss for polarization mismatch which is an overly optimistic figure that does not reflect the worst-case scenario.

6. I also disagree with AirTV's assertion that the interference threshold ("I/N") from a BSS satellite into terrestrial receivers should be -6 dB. *See* AirTV Petition at 4. In my professional judgment, a maximum I/N level of -10 dB is necessary to protect terrestrial receivers from interference from a BSS satellite. Indeed, just recently, the United States Joint Task Group 6-8-9 (a group in which AirTV's technical consultant has actively participated) adopted for submission to the ITU an input contributed by WCA, Sprint Corporation, BellSouth Corporation, Ericsson, IPWireless, Inc., Nextel, Nortel Catholic Television Network, and the National ITFS Association that endorsed -10dB as the appropriate maximum I/N for use in measuring satellite interference into terrestrial systems in the 2500-2690 MHz band. *See* "Characteristics of Fixed and Mobile Systems in the USA in the 2500-2690 MHz frequency range to be used for Sharing Studies," US JTG 6-8-9 (Jan. 27, 2004). Further, AirTV's statement that an I/N threshold of -6 dB is recommended by the ITU is misleading. Recommendation ITU-R F.758-2 cited by AirTV was superceded by Recommendation F.758-3 in February of 2003. F.758-3 does not expressly endorse -6 dB, but rather recommends "that studies are required to further develop appropriate short-term interference criteria; and that further studies are required to derive interference criteria that are appropriate for specific types of new services."
7. In light of the omissions and erroneous assumptions of AirTV's Report, I have prepared two case studies of the potential interference from BSS systems into U.S. terrestrial systems. Like AirTV, I analyzed both a satellite radiating at the maximum PFD values specified in Table 21-4 of Article 21 of the ITU Radio Regulations and at the PFD values proposed by AirTV. My studies use a mathematical methodology that is comparable to that used by AirTV to determine I/N. My studies differ from AirTV's, however, because I use a fixed video receive antenna and 1G data transceiver and a 2G data antenna that are deployed and in use in the United States.
8. The first case study calculates interference to a 24 dBi gain fixed video receive antenna and data transceiver (QLP 130094/130135). I selected this antenna because it is widely deployed in MDS and ITFS video and 1G data systems throughout the United States. My calculations are based upon antenna tabular data provided by the manufacturer and assume a 3 dB noise figure downconverter. The 3 dB noise figure represents the average of the noise figures specified by the manufacturer for the video antenna and the data transceiver. I calculated the I/N from a satellite radiating both at the Table 21-4 PFD values and at the PFD values proposed by AirTV. The results of my calculations are presented in Exhibit 1.
9. As demonstrated in Exhibit 1, the PFD values specified in Table 21-4 will produce I/N ratios in excess of -10 dB at all satellite elevations between 20 and 50 degrees, except at 32 degrees, using that particular antenna. Indeed, at most satellite elevations, Table 21-4 PFD values will produce I/N ratios which exceed even the less stringent -6 dB target advocated by AirTV. AirTV's proposed PFD values produce I/N ratios in excess of -10 dB at satellite elevations between 20 and 27 degrees.
10. The second case study calculates interference to a 2G data antenna with 7.5 dBi gain (Navini Model Ripwave 2.5/2.6) and a 4.5 dB noise figure. Again, I selected this antenna because it is deployed in the United States. My calculations are based upon specifications provided by the manufacturer. As in the first case, I calculated interference to such an antenna from a satellite radiating at both the Table 21-4 PFD values and the PFD values proposed by AirTV. The results of my calculations are presented in Exhibit 2.

11. As demonstrated in Exhibit 2, the PFD values specified in Table 21-4 produce, for this antenna, I/N ratios well in excess of -10 dB (and even in excess of -6 dB) at all satellite elevations between 20 and 50 degrees. AirTV's proposed PFD values produce I/N ratios in excess of -10 dB at all satellite elevations between 20 and 50 degrees and in excess of -6 dB at elevations between 34 and 50 degrees.
12. In sum, my work demonstrates that, if allowed to operate in the United States, BSS systems will introduce interference into existing terrestrial systems. Further, it is my professional opinion that BSS systems will likely introduce interference into future CPE planned for operations in the 2535-2655 MHz band. I am aware of significant work being done to develop new generations of CPE, such as laptop computers and PDAs, with flat panel or phased array antennas built into the LCD screen or covers of the CPE. Indeed, the LCD screens for laptop computers are an ideal location for a phased array or flat-panel antenna. Further, because users will need to tilt the laptop cover or PDA for viewing, the built-in antennas will need to have a wide vertical elevation pattern and thus will have significant gain in the direction of a satellite at 20 to 50 degrees when the device is used out-of-doors. Manufacturers will need to install antennas with wide patterns so that the user will not have to aim the device at the base station location. I expect that these devices will have gain in the 12 dBi range and it can be expected that as much as 6 to 10 dBi of that gain will be directed toward a satellite at 20 to 50 degrees. In fact, subscribers in rural areas and at the margins of a cell are currently using 12 dBi gain patch antennas as window mounts in 2G data systems. My calculations show that, under such conditions, BSS systems operating in the United States would likely exceed -6 dB.

FURTHER DECLARANT SAYETH NAUGHT


Harry W. Perlow

Date: March 3, 2004

EXHIBIT 2
I/N FOR 2G DATA ANTENNA

[illegible]

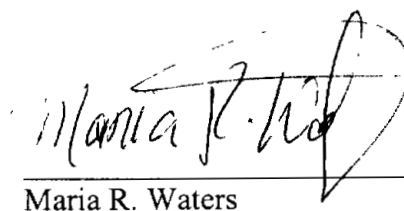
EXHIBIT 1
I/N FOR 24 dBi VIDEO RECEIVE ANTENNA AND TRANSCEIVER

Table 21-4 PFD																															
Desired frequency in MHz	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	
Bandwidth in MHz	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
MMDS antenna gain dBi	8.77	8.46	8.15	7.77	7.27	6.54	5.59	4.24	2.46	-0.05	-3.21	-7.08	-8.86	-6.54	-4.15	-2.7	-1.87	-1.7	-2	-2.84	-4.06	-5.71	-7.3	-7.59	-6.35	-4.53	-2.78	-1.38	-0.3	0.46	0.95
MMDS Receiver noise figure dB	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
KTB Noise floor dBm	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	
MMDS system sensitivity in dBW/MHz	-149.77	-149.46	-149.15	-148.77	-148.27	-147.54	-146.59	-145.24	-143.46	-140.95	-137.79	-133.92	-132.14	-134.46	-136.85	-138.3	-139.13	-139.3	-139	-138.16	-136.94	-135.29	-133.7	-133.41	-134.65	-136.47	-138.22	-139.62	-140.7	-141.46	-141.95
Satellite elevation in degrees	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Satellite PFD in dB(Wm2/MHz)	-116.75	-116	-115.25	-114.5	-113.75	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	-113	
Conversion from dB(Wm2/MHz to dBW)	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	
Satellite signal strength in dBW	-146.60	-145.85	-145.10	-144.35	-143.60	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	-142.85	
I/N	3.17	3.61	4.05	4.42	4.67	4.69	3.74	2.39	0.61	-1.90	-5.06	-8.93	-10.71	-8.39	-6.00	-4.55	-3.72	-3.55	-3.85	-4.69	-5.91	-7.56	-9.15	-9.44	-8.20	-6.38	-4.63	-3.23	-2.15	-1.39	-0.90
24 dBi H antenna data 20 - 50 degrees	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Antennae Tab Data	-15.23	-15.54	-15.85	-16.23	-16.73	-17.46	-18.41	-19.76	-21.54	-24.05	-27.21	-31.08	-32.86	-30.54	-28.15	-26.7	-25.87	-25.7	-26	-26.84	-28.06	-29.71	-31.3	-31.59	-30.35	-28.53	-26.78	-25.38	-24.3	-23.54	-23.05
Air TV proposed PFD																															
Desired frequency in MHz	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	2630	
Bandwidth in MHz	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
MMDS antenna gain dBi	8.77	8.46	8.15	7.77	7.27	6.54	5.59	4.24	2.46	-0.05	-3.21	-7.08	-8.86	-6.54	-4.15	-2.7	-1.87	-1.7	-2	-2.84	-4.06	-5.71	-7.3	-7.59	-6.35	-4.53	-2.78	-1.38	-0.3	0.46	0.95
MMDS Receiver noise figure dB	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
KTB Noise floor dBm	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	-114	
MMDS system sensitivity in dBW/MHz	-149.77	-149.46	-149.15	-148.77	-148.27	-147.54	-146.59	-145.24	-143.46	-140.95	-137.79	-133.92	-132.14	-134.46	-136.85	-138.3	-139.13	-139.3	-139	-138.16	-136.94	-135.29	-133.7	-133.41	-134.65	-136.47	-138.22	-139.62	-140.7	-141.46	-141.95
Satellite elevation in degrees	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Satellite PFD in dB(Wm2/MHz)	-126.9	-126.61	-126.32	-126.03	-125.74	-125.45	-125.16	-124.87	-124.58	-124.29	-124	-123.75	-123.5	-123.25	-123	-122.75	-122.5	-122.25	-122	-121.75	-121.5	-121.66	-121.82	-121.98	-122.14	-122.3	-122.46	-122.62	-122.78	-122.94	-123.1
Conversion from dB(Wm2/MHz to dBW)	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	-29.85	
Satellite signal strength in dBW	-156.75	-156.46	-156.17	-155.88	-155.59	-155.30	-155.01	-154.72	-154.43	-154.14	-153.85	-153.60	-153.35	-153.10	-152.85	-152.60	-152.35	-152.10	-151.85	-151.60	-151.35	-151.51	-151.67	-151.83	-151.99	-152.15	-152.31	-152.47	-152.63	-152.79	-152.95
I/N	-6.98	-7.00	-7.02	-7.11	-7.32	-7.76	-8.42	-9.48	-10.97	-13.19	-16.06	-19.68	-21.21	-18.64	-16.00	-14.30	-13.22	-12.80	-12.85	-13.44	-14.41	-16.22	-17.97	-18.42	-17.34	-15.68	-14.09	-12.85	-11.93	-11.33	-11.00
24 dBi H antenna data 20 - 50 degrees	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Antennae Tab Data	-15.23	-15.54	-15.85	-16.23	-16.73	-17.46	-18.41	-19.76	-21.54	-24.05	-27.21	-31.08	-32.86	-30.54	-28.15	-26.7	-25.87	-25.7	-26	-26.84	-28.06	-29.71	-31.3	-31.59	-30.35	-28.53	-26.78	-25.38	-24.3	-23.54	-23.05

CERTIFICATE OF SERVICE

I, Maria R. Waters, hereby certify that on this 3rd day of March, 2004, copies of the foregoing Opposition to Petition for Reconsideration have been served by hand-delivery, on the following:

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2000 K Street, N.W., Suite 600
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Maria R. Waters